

Application No.: 10/674,250
Amendment dated: 09/15/05
Reply to Office Action mailed: 04/08/05

Remarks/Arguments

The inventorship is considered to be proper for all of the claims presently pending in the subject application.

The rejection of Applicants' claims 2, 8, 9, 11-17, 19-21 and 25 under 35 U.S.C. 103(a) as unpatentable over the Bauer article (Bauer) in view of U.S. Patent 4,907,405 issued March 13, 1990 to Robert J. Polizzotto (Polizzotto) is respectfully traversed and reconsideration is respectfully requested.

The Examiner states that Bauer discloses a system "which uses electric compressors to compress refrigerant with gas turbines being used to generate the electricity." It is respectfully submitted that there is no such disclosure in Bauer. Bauer discloses in Figure 6 that a cogeneration plant could be used in combination with a steam turbine driving one of the three compressors with the other two compressors being electrically powered compressors. It is noted that cogeneration plants, as well as combined cycle power plants, generally are designed to produce both electrical power and steam power. Applicants require all electric compressors for the reasons set forth in the application at paragraph 0014. Reasons for the internal generation of electricity by the use of fossil fuel turbines are discussed at paragraphs 0015-0017.

In the system shown in Bauer in Figure 7, where all electric units are used, it is not clear how the electrical power is generated other than the reference to a combined cycle power plant. Particularly it is not clear, in view of the discussion on the following page, that the electrical power used is internally generated. Bauer suggests that the ultimate step of disintegrating (separating) the LNG plant from the power generation is a concept in which only electric energy is used to drive all refrigerant cycle compressors. This disintegration is the opposite of the integration of the electrical power generation as an internal function. The required electrical energy then is disclosed by Bauer to be generated using "whatever suitable technology." Bauer suggests that since natural gas is presumably available, a combined cycle power plant is a very strong competitor for the most cost effective solution. This presupposes a use for the steam generated in

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combination with the electrical power typically generated in combined cycle plants. In fact, in connection with FIG 5, Bauer uses steam to drive one of the three turbines with excess power from the SC steam turbine being used to generate electricity. Bauer also does not suggest that the electric power should be supplied completely from an internal or dedicated source as required to disintegrate the LNG process from the power generation.

As discussed in Applicants' specification, numerous advantages are achieved by having standby gas fired turbines with generators for use to add to or replace shut down generating capacity to provide power to drive the electric motors driving the compressors. Those advantages are discussed for having the gas fired turbines and generators available for replacement or for use for adding capacity. As Bauer indicated under the heading "Driver Concepts", "Electric motor drivers fed from a public grid are not used for large liquefaction capacities." Accordingly, it is respectfully submitted that Bauer discloses that the use of gas fired turbines with steam generators for use to internally generate power in a public grid for use to drive electrical motors to provide the complete electrical power requirements of a light gas liquefaction plant is not done.

Clearly, in view of Bauer's earlier disclosure "whatever suitable technology" does not include the use of the public grid. Bauer does not disclose the use of off-site power plants, whether combined cycle, co-generation or the like, which may well be used for the generation of electrical power for the public grid for use on-site. There is no disclosure in Bauer that an on-site power source comprising gas-fired turbines should be used to supply all the electricity to power the compressors and the light gas liquefaction plant. Bauer states that "... a conversion of fuel gas outside of the plant battery limits to other forms of energy such as electricity or steam will be more cost effective." It appears that Bauer discloses, on balance, that the electrical power should be generated outside the process and not as an integrated on-site part of the process.

Polizzotto has been reviewed but is not considered to be sufficient to remedy any of the shortcomings of Bauer. For instance, Applicants have acknowledged on page 4, paragraph 12 of their application that compressed air and hydrocarbon gases are

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commonly charged at elevated pressure to gas fired turbines. This limitation appears to be the only limitation for which Polizzotto has been cited. As indicated previously, this limitation is not considered to be a novel limitation, per se.

What is considered novel is the use of dedicated gas fired turbines and generators with energy recovery steam turbine generators to provide the sole power source for an all electrical light hydrocarbon gas liquefaction process.

The use of only internally generated electricity permits the operator to ensure and control the quantity and quality of the electricity supplied to the process equipment. As discussed in paragraph 0017 of the application, the use of additional turbines as required enables the operator to react to power requirement surges which may be of a magnitude unacceptable if drawn from the public grid.

Bauer also discloses that "... a conversion of fuel gas outside of the battery limits to other forms of energy such as electricity or steam will be more cost effective." This is another instance of Bauer disclosing that desirably the electrical generation should be offsite. This is contra to Applicants' claimed invention and removes control of the supply of electricity from the process operator.

It is respectfully submitted that neither of the cited references, taken alone or in combination has shown or suggested that such a process and facility would be obvious or desirable.

Accordingly, it is respectfully requested that all rejections of Applicants' claims under these references be withdrawn.


While Applicants' previously pending claims, as amended, are considered to require internal generation of all the required electrical power, new claims 29 and 30 have been submitted to more clearly require that all of the required electrical power for the whole process is internally supplied by the gas fired turbine driven electrical generator and the high pressure steam driven electrical generator. It is believed that these

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claims more accurately and succinctly define Applicants' claimed invention and place Applicants' claims in condition for allowance.

Accordingly, it is respectfully submitted that in view of the foregoing amendments and comments, all of Applicants' claims and particularly Applicants' newly added claims are now in condition for allowance and such is respectfully solicited.

Respectfully submitted,


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